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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FRANK KUHLMANN, FRANK WOLF, UWE NASSAL, HORST LEHMANN, and EDGAR NAEGELE[1]

Appeal 2016-008104
Application 11/567,534
Technology Center 1600

Before DEMETRA J. MILLS, RYAN H. FLAX, and DEVON ZASTROW NEWMAN, *Administrative Patent Judges*.

FLAX, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) involving claims directed to a method of determining a candidate for a product generated by a biological system administered with an educt. Claims 1, 2, 4, 5, 8, 11–17, 21, and 22 are on appeal as rejected under 35 U.S.C. § 101. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] Appellants identify the Real Party in Interest as "Agilent Technologies, Inc." App. Br. 5.

STATEMENT OF THE CASE

The Specification states, the "invention relates to the identification of chemical reaction products, such as metabolites, degradants and [the] []like." Spec. ¶ 1. The Specification summarizes the invention, stating:

> a method of determining (for instance identifying) a candidate for a product (for instance a possible/assumed metabolite) generated by a biological system (for instance an organism, like the human body) administered with an educt (for instance a drug) is provided, the method comprising determining the candidate for the product based on a combination of a plurality of (at least two) different (for instance complementary) procedures for determining the product (for instance an actual/real metabolite).

Id. ¶ 8. As the tools or equipment used to perform such a method, the Specification identifies, "a computer," "a mass spectrometer device, a liquid chromatography device, a gel electrophoresis device, [or a] radioactivity detector, etc." *Id.* ¶¶ 9, 38; *see also id.* ¶ 59 (identifying other well-known measurement devices). As the "procedure for determining a product," e.g., the metabolite, the Specification explains it "may [be] any theoretical model, empiric model, algorithm or experimental data evaluation method, for instance," several known/published procedures "capable of predicting products." *Id.* ¶ 16.

Claims 1, 21, and 22 are the independent claims. Claim 1 is representative and is reproduced below:

> 1. A method of determining a candidate for a product generated by a biological system administered with an educt, comprising:
>
> a) subjecting a sample from the biological system administered with an educt to a measurement device to provide a data set indicative of sample;

> b) selecting a subset of data from the data set of step a) indicative of a potential candidate for the product generated by the biological system; and
>
> c) processing the selected subset of data according to a plurality of different procedures for determining the product, wherein the processing comprising [*sic*] weighting the plurality of different procedures to produce a weighted product candidate value that is compared to a predetermined threshold value for determining the product.

App. Br. 23 (Claims App'x).

The following rejection is appealed:

Claims 1, 2, 4, 5, 8, 11–17, 21, and 22 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Final Action 2.

DISCUSSION

We adopt the Examiner's findings of fact, reasoning on scope and content of the claims and prior art (e.g., what was well known, routine, and/or conventional in the field), and conclusions set out in the Final Action and Answer. Final Action 2–6; Answer 2–15. Only those arguments made by Appellants in the Appeal Brief and properly presented in the Reply Brief have been considered in this Decision. Arguments not so presented in the Briefs are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2015); *see also Ex parte Borden*, 2010 WL 191083 at *2 (BPAI 2010) (informative) ("Any bases for asserting error, whether factual or legal, that are not raised in the principal brief are waived.").

"[T]he examiner bears the initial burden, on review of the prior art ***or on any other ground***, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument

shifts to the applicant." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (emphasis added).

"Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Claims directed to *nothing more* than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible for patent protection. *Diamond v. Diehr*, 450 U.S. 175, 185 (1981); *accord* MPEP § 2106 (II) (discussing *Diehr*); *see also Parker v. Flook*, 437 U.S. 584, 592–94 (1978) (if, once the mathematical algorithm is removed from consideration, if nothing patentable remains, the claims are not patent-eligible).

In analyzing patent-eligibility questions under 35 U.S.C. § 101, the Supreme Court instructs us to "first determine whether the claims at issue are directed to a patent-ineligible concept." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). If the initial threshold is met, we then move to a second step and "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo*, 566 U.S. at 97).

In *In re BRCA1*, the Federal Circuit held that a claimed method for screening a germline of a human subject for an alteration of the BRCA1 gene by comparing a sample BRCA1 gene sequence with a reference, wild-type germline sequence of BRCA1 gene was directed to an abstract idea — a

"mental process of 'comparing' and 'analyzing' two gene sequences," i.e., data. *In re BRCA1– and BRCA2–Based Hereditary Cancer Test Patent Litigation*, 774 F.3d 755, 763–64 (Fed. Cir. 2014) ("allowing a patent on the comparison step could impede a great swath of research relating to the BRCA genes, and it is antithetical to the patent laws to allow these basic building blocks of scientific research to be monopolized.").

Also, in *Cleveland Clinic Found*ation, the Federal Circuit affirmed a finding that claims directed to detecting and comparing levels of myeloperoxidase in the body to diagnose cardiovascular disease, using conventional devices in their customary ways, were not patent-eligible. *Cleveland Clinic Foundation v. True Health Diagnostics LLC*, 859 F.3d 1352, 1356, 1359 (Fed. Cir. 2017). The Federal Circuit held that observing a natural phenomenon, without altering it or developing related new field techniques, amounted to patent-ineligible subject matter. *Id.* 1361. Further, the court held that determining and analyzing based on observing (measuring) the natural phenomenon did not purport to improve the devices or techniques used for such measuring or analyzing or determining (i.e., calorimetric-based assay, flow cytometry, or ELISA), but relied on known devices and techniques used conventionally and, thus, did not transform the claims into patent-eligible subject matter. *Id.* at 1362.

In light of the above-cited precedent, here, under *Alice's* step one, the Examiner determined:

> claim(s) 1, 2, 4, 5, 8, 11-17 and 21-22 is/are directed to a method of determining a candidate for a product generated by a biological system. The independent claims are claim 1, 17, 21 and 22. The independent claims are directed to a judicial exception, an abstract idea. The abstract idea comprises the steps

> of analyzing sample data, wherein data is selected, processed using computer system elements, and determined to be a product of the system.

Answer 2. Further, the Examiner determined that "[s]electing a subset of data (subtracting unwanted data), processing that data and determination (weighting values and ranking) of the product are all performed by mathematical algorithms," which is an abstract idea. *Id.* at 3–5.

Having determined under *Alice's* step one that the claims are directed to an abstract idea, the Examiner moved to *Alice's* step two and determined that "the claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception(s)." *Id.* at 5–6. The Examiner identified that the computer and measurement devices of the invention were claimed "at an extremely high level of generality," and were "well understood, routine, and conventional [] in the field of science," noting that "[n]o particular type of measurement or measurement device is required" and any computer used was "generic." *Id.* at 5–6.

"[W]e continue to 'treat[ ] analyzing information by steps people [could] go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.'" *Synopsys, Inc. v. Mentor Graphics Corp.* 839 F.3d 1138, 1146–47 (Fed. Cir. 2016) (quoting *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (citations omitted)); *see also Electric Power Group*, 830 F.3d at 1353 ("collecting information, analyzing it, and displaying certain results of the collection and analysis" "fall[s] into a familiar class of claims 'directed to' a patent-ineligible concept," that of the abstract idea).

The Federal Circuit has recognized that "a claim for a *new* abstract idea is still an abstract idea." *Synopsys*, 839 F.3d at 1151.

We conclude the Examiner's determinations are reasonable and discern no error with the Examiner's conclusion that the claims are directed to an abstract idea, namely data manipulation and making routine computer-aided comparisons of that data, which was collected using conventional and routinely used devices in the field, by applying a mathematical algorithm. Simply adjusting the way that data is manipulated and using a generic computer system programmed to do so, something that is routine and customary, does not transform the abstract idea into a patent-eligible invention. We have considered each of Appellants' arguments (App. Br. 7–21; Reply Br. 2–6) and find none persuasive.

We note, in their Reply Brief, Appellants argue the facts here are comparable to those of *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016), where the Federal Circuit held claims to a new way of computing using tabulated data (a self-referential table) was an improvement in the way computers operated and, thus, was patent eligible. *See* Reply Br. 3–4. We are not persuaded.

The claims here are unlike the claims in *Enfish*, where the Federal Circuit relied on the distinction made in *Alice* between computer functionality improvements and uses of existing computers as tools in aid of processes focused on "abstract ideas." *See Enfish*, 822 F.3d at 1335–36; *see also Alice*, 134 S. Ct. at 2358–59. Such a distinction has common-sense force even if it presents challenges in application due to the programmable nature of ordinary existing computers. In *Enfish*, the Federal Circuit applied

this distinction to reject a patent-eligibility challenge because the claims there were not focused on advances to which existing computer capabilities could be applied, but were focused instead on a specific improvement—a particular database technique—in how computers could basically function in storing and retrieving data. *Enfish*, 822 F.3d at 1335–36.

The present case is different. The focus of the claims here is not on an improvement in computers (or mass spectrometers or liquid chromatography devices, etc.) as tools or upon an innovative way to use computers or other devices, or on taking advantage of a natural phenomenon to achieve an improved lab technique, but is focused on an independently abstract idea that uses generic and routinely used equipment as tools; that abstract idea being the manipulation and comparison of measured and stored data. Data manipulation has long been held to be an abstract idea. Here the arguably innovative technique of the appealed claims is inextricably a part of the abstract idea of manipulating data itself. Moreover, the invention on appeal does not relate to a new or improved way of collecting or measuring a sample and related data or to new or improved computer hardware or functioning. Nothing in the claims, understood in light of the Specification, requires anything other than off-the-shelf, conventional computer, interface, display, and measurement technology for gathering, sending, comparing, and presenting information about metabolites or other chemical candidates of interest.

For the reasons set forth above, we affirm the rejection.

SUMMARY

The rejection of the claims as directed to patent-ineligible subject matter is affirmed.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED